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Congenital Cardiology Solutions

ABILITY OF THE EUROPEAN SOCIETY OF CARDIOLOGY GUIDELINES TO PREDICT HAEMODYNAMICALLY SIGNIFICANT COARCTATION OF THE AORTA

Poster Contributions

Poster Sessions, Expo North

Monday, March 11, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Congenital Cardiology Solutions: Adult Congenital Heart Disease

Abstract Category: 12. Congenital Cardiology Solutions: Adult

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Authors: *Mikael G. Dellborg, Marco Astengo, Caroline Berntsson, Peter Eriksson, Valeria Fisichella, Dept of Medicine Sahlgrenska University Hospital Ostra, Goteborg, Sweden, Dept of Radiology Sahlgrenska University Hospital, Goteborg, Sweden*

Background: in the setting of coarctation of the aorta (CoA), clinical symptoms and signs, exercise testing and imaging techniques help identify patients in need of intervention. Nonetheless, cardiac catheterization is still regarded as the gold standard for the evaluation of haemodynamically significant CoA. According to the European Society of Cardiology Guidelines (ESC), all patients with a non-invasive pressure difference >20 mmHg between upper and lower limbs with arterial hypertension, pathological blood pressure response during exercise, or left ventricular hypertrophy (LVH) should have intervention (class I recommendation, level of evidence C), while hypertensive patients with $\geq 50\%$ aortic narrowing relative to the aortic diameter at the diaphragm level on imaging, should be considered for intervention (class IIa recommendation, level of evidence C).

Methods: clinical, imaging and catheterization data of 42 consecutive subjects with CoA suspected to be haemodynamically significant and undergoing cardiac catheterization from October 1998 to November 2011 with complete clinical and catheterization data were reviewed retrospectively. The ability of Class I and IIa recommendations in identifying patients with a peak-to-peak pressure gradient ≥ 20 mmHg at catheterization was tested.

Results: 42 cases were analysed, 31 were male (74%); mean age at cath 35.1 ± 4.8 years; 26 (62%) had native CoA; 26 (62%) bicuspid aortic valve; 3 (7%) left ventricular ejection fraction $< 55\%$; 33 (79%) hypertension; 22 (52%) had LVH; and 23 patients (54.8%) had a peak-to-peak pressure gradient ≥ 20 mmHg. Combination of class IC and IIaC recommendations predicted a significant pressure gradient with a sensitivity of 0.87, specificity of 0.37, positive predictive value of 0.62 and a negative predictive value of 0.70. Overall diagnostic accuracy was 0.64.

Conclusions: Current ESC guideline criteria to identify patients with CoA needing intervention performed poorly in predicting a significant pressure gradient at catheterisation. Further efforts are needed to develop a reliable noninvasive method to classify patients with CoA, thereby safely reducing the number of diagnostic catheterizations